

HEMATOLOGICAL PROFILE OF THREE SPECIES OF *Hipposideros* (HIPPOSIDERIDAE) AS AN ADAPTATION IN CAVE HABITAT, IN GUNUNG SEWU GEOPARK AREA, INDONESIA

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ABSTRACT

Bats that feed on insects and are members of the Hipposideridae family, category Chiroptera is widely dispersed around the world, including *Hipposideros* spp. There are 29 species of 73 species which inhabit Indonesia. Most of these species use caves as their roosting habitat. In cave habitats, with different physicochemical conditions from surface habitats, the hematological profile can be a physiological indicator in responding to habitat conditions. The goals of this study was to examine the hematological spectrum of three species of *Hipposideros* as a parameter of physiological adaptation in the cave's habitat, located in the Gunung Sewu Karst area. Sampling was carried out purposively in six caves locality of the Gunung Sewu karst. We found three species (*Hipposideros diadema*, *H. larvatus*, and *H. ater*) with a total number of 70 individuals. Blood samples from each bat were taken 1 mL from the intracardiac and put into microtube with anticoagulant EDTA. A total of 20 parameters were observed from erythrocyte, leukocyte, and platelet profiles. These parameters using a Hematology Analyzer for analysis. Data differences in hematiological profiles between species and sex were analyzed using one-way ANOVA (sig= 95%), respectively. The relationship trend between the physicochemical parameters of the roosting area in the cave with erythrocytes and haemoglobin was then analyzed using a univariate linear model with multiple regression. All statistical analyses were performed using Paleontological statistics program (PAST) ver. 4.09 and R. Studio v1.4.1717-3. The hematological profiles of the three *Hipposideros* species showed differences between species and sex, although some samples did not show a significant difference based on statistical tests. Erythrocytes and hemoglobin can be used as parameters of physiological adaptation to cave habitats. The increase of erythrocytes and hemoglobin was in line with with decreased air temperature and oxygen levels and increased humidity and ammonia levels in cave habitats.

Kata Kunci: *Bat cave, hematology, Hipposideros, microchiroptera, physiological adaptations*